Trade and Industrial Education
Course: Plumbing II
Course Code # 5740

2 Credits

School Year _____

Term:____Fall____Spring

Student:	Grade:
Teacher:	School:
Number of Competencies in Course:	43
Number of Competencies Mastered:	
Percent of Competencies Mastered:	

STANDARD 1.0: Students will demonstrate leadership, citizenship, and teamwork skills required for success in the school, community, and workplace.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
1.1	Demonstrate leadership skills.		
1.2	Use problem-solving techniques to address and propose solutions to school, community, and workplace problems.		
1.3	Demonstrate the ability to work professionally with others.		
1.4	Participate in SkillsUSA-VICA as an integral part of instruction.		

STANDARD 2.0: Students will assume responsibility for the safety of themselves, their coworkers, and bystanders.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
2.1	Exhibit and encourage in others a positive attitude regarding safety practices and issues.		
2.2	Habitually inspect and use appropriate personal protective equipment for assigned tasks.		
2.3	Inspect, maintain, and employ safe operating procedures with tools and equipment, such as soldering and brazing equipment, lifting equipment, and high pressure gas containers.		
2.4	Exhibit a well-developed awareness of potential hazards to themselves and others.		
2.5	Carry out responsibilities under HazCom (Hazard Communication) regulations.		
2.6	Take action to protect coworkers and bystanders from hazards as required by regulations and company policies.		
2.7	Report accidents and observed hazards and execute emergency response procedures as required by regulations, and company policies.		
2.8	Demonstrate appropriate related safety procedures.		
2.9	Pass with 100 % accuracy a written examination relating to safety issues.		
2.10	Pass with 100% accuracy a performance examination relating to safety.		
2.11	Maintain a portfolio record of written safety examinations and equipment examinations for which the student has passed an operational checkout by the instructor.		

STANDARD 3.0: Students will interpret, lay out, and fabricate in conformance to construction drawings and written specifications.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
3.1	Scale dimensions that are not explicitly included in construction drawings.		
3.2	Interpret plan and elevation views shown in construction drawings.		
3.3	Recognize and interpret lines and symbols commonly used in construction drawings.		

STANDARD 4.0: Students will relate principles of physics to the operation of plumbing systems.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
4.1	Relate pressure difference in a system to the flow rate through the system.		
4.2	Discuss the role of viscosity and flow rate on pressure drop in a plumbing system.		
4.3	Analyze the role of hydrostatic pressure in water delivery systems		
4.4	Relate Boyle's Law to the changes in gas pressure in plumbing systems.		
4.5	Relate Archimedes Principle to buoyant forces experienced by plumbing systems		
4.6	Relate the concepts of momentum and impulse to the control of water flow in plumbing systems		

STANDARD 5.0: Students will examine special considerations required for fuel systems in commercial and residential structures.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
5.1	Describe the major types of fuel systems.		
5.2	Demonstrate procedures for testing and purging of fuel system piping, and the reasons for doing so		
5.3	Compare and contrast the hazards and benefits of fuel systems using natural gas, LPG, and fuel oil.		
5.4	Compare and contrast piping systems allowed by code for use with different fuels.		
5.5	Comprehend the requirements for combustion air supply and combustion product venting.		

STANDARD 6.0: Students will install and maintain pressure-reducers and backflow preventers.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
6.1	Use pressure-reducing valves to reduce pressure in water supply systems.		
6.2	Use various backflow prevention devices in water supply systems.		

Standard 7.0: Students will troubleshoot and repair fixtures, valves, and faucets.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
7.1	Troubleshoot common failures in fixtures, valves, and faucets.		
7.2	Repair and maintain fixtures, valves, and faucets.		

Standard 8.0: Students will install and test DWV piping.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
8.1	Locate all rough-in components in residential or commercial DWV systems.		
8.2	Install carriers common to residential or commercial construction		
8.3	Install sewer pipe at a specified grade.		
8.4	Install vents.		
8.5	Test and inspect DWV piping.		

Standard 9.0: Students will size and construct vents for a DWV system.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
9.1	Comprehend the need for vents in a DWV system.		
9.2	Construct DWV vents and drains according to construction drawings and local code requirements.		
	Select appropriate type of vent for a given fixture.		
9..3	Select proper sized vent and drain for a given group of fixtures.		

Standard 10.0: Students will determine the size of storm drain system needed to serve a structure.

Learning Expectations	Check the appropriate Mastery or Non-Mastery column	Mastery	Non-Mastery
10.1	Determine maximum volume flow rate that must be handled by a storm drain system.		
10. 2	Determine the required size of vertical leaders and storm drains		

Additional Comments _____